a first light source configured to emit a first light flux having a first wavelength for recording and/or reproducing a second information recording medium provided with a transparent substrate having a thickness of t1;

a second light source configured to emit a second light flux having a second wavelength longer than the first wavelength, for recording and/or reproducing a first information recording medium provided with a transparent substrate having a thickness of t1;

a third light source configured to emit a third light flux having a third wavelength longer than the second wavelength, for recording and/or reproducing a third information recording medium provided with a transparent substrate having a thickness of t2 thicker than t1;

an objective lens configured to converge the first light flux emitted from the first light source onto an information recording plane of the second optical information recording medium when recording and/or reproducing information is conducted for the second information recording medium, to converge the second light flux emitted from the second light source onto an information recording plane of the first optical information recording medium when recording and/or reproducing information is conducted for the first information recording medium, and to converge the third light flux emitted from the third light source onto an information recording plane of the third optical information recording medium when recording and/or reproducing information is conducted for the third information recording medium; and

a photodetector configured to receive a reflected light flux modulated by the information recording plane.

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138. The optical pickup apparatus of claim 137, wherein the first light flux having the first wavelength is a blue laser beam.

139. The optical pickup apparatus of claim 138, wherein the second optical information recording medium is a next-generation high density optical disk which information is recorded on and/or reproduced from with the blue laser beam.

140. The optical pickup apparatus of claim 137, wherein when NA2 is an image side numerical aperture of the objective lens necessary for recording and/or reproducing information for the first optical information medium, NA1 is an image side numerical aperture of the objective lens necessary for recording and/or reproducing information for the second optical information medium, and NA3 is an image side numerical aperture of the objective lens necessary for recording and/or reproducing information for the third optical information medium, NA1 and NA2 are larger than NA3.

141. The optical pickup apparatus of claim 140, wherein NA1 is equal to NA2.

142. The optical pickup apparatus of claim 140, wherein when recording and/or reproducing information is conducted for the third optical information recording medium, a spherical aberration of a light flux having passed through a region of the objective lens having a numerical aperture larger than NA3 is flare on the third optical information recording medium.

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143. The optical pickup apparatus of claim 137, wherein the objective lens comprises a ring-shaped diffractive surface.

144. The optical pickup apparatus of claim 137, wherein the objective lens comprises an aspherical refractive surface and a ring-shaped diffractive surface.

145. The optical pickup apparatus of claim 144, wherein the aspherical refractive surface and the ring-shaped diffractive surface correct spherical aberrations due to difference in wavelength among the first, second and third light fluxes and spherical aberrations due to difference in thickness of the transparent substrate among the first, second and third optical information mediums.

146. The optical pickup apparatus of claim 143, wherein the ring-shaped diffractive surface is designed by a phase difference function in which a coefficient of the second power term is not zero and a coefficient of a term other than the second power term is not zero.

147. The optical pickup apparatus of claim 137, wherein spherical aberrations due to difference in wavelength among the first, second and third light fluxes are corrected by a combination of a refractive power and a diffractive power of the objective lens.

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